



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/560,477	12/12/2005	Jill MacDonald Boyce	PU030170	3151
24498	7590	03/22/2011		
Robert D. Shedd, Patent Operations THOMSON Licensing LLC P.O. Box 5312 Princeton, NJ 08543-5312			EXAMINER THOMPSON, JAMES A	
			ART UNIT 2625	PAPER NUMBER
			MAIL DATE 03/22/2011	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.



UNITED STATES PATENT AND TRADEMARK OFFICE

---

Commissioner for Patents  
United States Patent and Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/560,477  
Filing Date: December 12, 2005  
Appellant(s): BOYCE ET AL.

---

Guy H. Eriksen  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 07 January 2011 appealing from the Office action mailed 18 November 2010.

Art Unit: 2625

**(1) Real Party in Interest**

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

**(2) Related Appeals and Interferences**

The following are the related appeals, interferences, and judicial proceedings known to the examiner which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal:

- a. Application Number 10/560499, Appeal Brief filed 07 January 2011 in response to Office action mailed 19 November 2010.
- b. Application Number 10/559643, Appeal Brief filed 21 February 2011 in response to Office action mailed 27 December 2010.
- c. Application Number 10/559242, Appeal Brief filed 07 January 2011 in response to Office action mailed 17 November 2010.

**(3) Status of Claims**

The following is a list of claims that are rejected and pending in the application:

Claims 14 and 15 stand rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter.

Claims 1, 3-5 and 7-15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over European Patent Application Publication EP 0 883 299 A2 to Nakagawa et al.

("Nakagawa") in view of US Patent Application Publication 2004/0034864 to Barrett et al.

("Barrett").

Art Unit: 2625

Claim 2 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakagawa in view of Barrett and US Patent 6,587,505 to Nozawa et al. (“Nozawa”).

Claims 6, 14 and 15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakagawa in view of Barrett and well-known prior art.

**(4) Status of Amendments After Final**

The examiner has no comment on the appellant’s statement of the status of amendments after final rejection contained in the brief.

**(5) Summary of Claimed Subject Matter**

The examiner has no comment on the summary of claimed subject matter contained in the brief.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The examiner has no comment on the appellant’s statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading “WITHDRAWN REJECTIONS.” New grounds of rejection (if any) are provided under the subheading “NEW GROUNDS OF REJECTION.”

**WITHDRAWN REJECTIONS**

The following grounds of rejection are not presented for review on appeal because they have been withdrawn by the examiner. The rejection of claims 14 and 15 under 35 U.S.C. § 101.

Art Unit: 2625

**(7) Claims Appendix**

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

**(8) Evidence Relied Upon**

European Patent Application Publication EP 0 883 299 A2, Published 09 December 1998.

2004/0034864	Barrett et al.	2-2004
--------------	----------------	--------

6,587,505	Nozawa et al.	7-2003
-----------	---------------	--------

Digital Design Principles and Practices, by John F. Wakerly, pp. 278-283, copyright 1990, Princeton-Hall.

"Modeling and Analysis of a Variable Bit Rate Video Multiplexer," by G. Ramamurthy & B. Sengupta, IEEE INFOCOM '92, pp. 817-827, copyright 1992.

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

**Claims 1, 3-5 and 7-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakagawa (EP 0 883 299 A2) in view of Barrett (US-2004/0034864).**

**Regarding claims 1, 10 and 13:** Nakagawa discloses a video encoder for receiving input pictures (**fig. 1 and column 4, lines 36-45 of Nakagawa**) and providing compressed stream data (**column 5, lines 10-17 of Nakagawa**), the encoder comprising:

a normal encoding portion for receiving input pictures and providing normal stream data (**column 4, lines 43-45 and lines 54-58 of Nakagawa**);

Art Unit: 2625

a lower-quality encoding portion for receiving input pictures and providing lower-quality stream data (**column 4, line 51 to column 5, line 3 and column 5, lines 10-17 of Nakagawa**); and

a multiplexer in signal communication with each of the normal and lower-quality portions for receiving and combining the normal and lower-quality data streams (**column 8, lines 3-11 of Nakagawa** - normal and lower-quality data streams combined according to resolution selection controller, and stored frames are converted accordingly).

Nakagawa does not disclose expressly that the lower-quality encoding portion provides channel change stream data; and that the multiplexer combines the normal and channel change data streams.

Barrett discloses encoding normal stream data and separately encoding channel change stream data (**fig. 5 and para. 6 of Barrett**).

Nakagawa and Barrett are analogous art because they are from the same field of endeavor, namely control and switching of digital video data streams. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to switch between normal stream data and channel change stream data, as taught by Barrett. Thus, by combination, the lower-quality encoding portion would provide channel change stream data, and the multiplexer would combine the normal and channel change data streams. The suggestion for doing so would have been that utilizing the channel change stream as the alternate data stream, as taught by Barrett, would reduce channel change latency while maintaining an acceptable level of image quality. Therefore, it would have been obvious to combine Barrett with Nakagawa to obtain the invention as specified in claims 1, 10 and 13.

Art Unit: 2625

Further regarding claim 10: The method of claim 10 is performed by the encoder of claim 1.

Further regarding claim 13: The apparatus of claim 13 is embodied by the encoder of claim 1.

**Regarding claim 3:** Nakagawa discloses a downsampling unit in signal communication with the lower-quality encoding portion for providing downsampled input pictures to the lower-quality encoding portion (**fig. 4 and column 5, lines 10-17 of Nakagawa**).

**Regarding claim 4:** Nakagawa does not disclose expressly means for creating a channel change stream with more frequent intra-coded pictures in the channel change stream than in a corresponding normal stream.

Barrett discloses means for creating a channel change stream with more frequent intra-coded pictures in the channel change stream than in a corresponding normal stream (**para. 56 of Barrett** – at least one previous I-picture is received for the channel change stream data in between the time when two normal stream I-pictures would be received, and is thus more frequent).

Nakagawa and Barrett are analogous art because they are from the same field of endeavor, namely control and switching of digital video data streams. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to switch between normal stream data and channel change stream data, the channel change stream requiring more frequent intra-coded pictures, as taught by Barrett. The suggestion for doing so would have been that utilizing the channel change stream in the manner taught by Barrett would reduce channel

Art Unit: 2625

change latency while maintaining an acceptable level of image quality. Therefore, it would have been obvious to combine Barrett with Nakagawa to obtain the invention as specified in claim 4.

**Regarding claim 5:** Nakagawa discloses means for downsampling to create lower resolution stream pictures (**fig. 4 and column 5, lines 10-17 of Nakagawa**).

Nakagawa does not disclose expressly that the lower resolution stream pictures are lower resolution channel change stream pictures.

Barrett discloses encoding normal stream data and separately encoding lower-quality channel change stream data (**fig. 5 and para. 6 of Barrett**).

Nakagawa and Barrett are analogous art because they are from the same field of endeavor, namely control and switching of digital video data streams. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to switch between normal stream data and channel change stream data, as taught by Barrett. The suggestion for doing so would have been that utilizing the channel change stream as the alternate data stream, as taught by Barrett, would reduce channel change latency while maintaining an acceptable level of image quality. Therefore, it would have been obvious to combine Barrett with Nakagawa to obtain the invention as specified in claim 5.

**Regarding claim 7:** Nakagawa does not disclose expressly means for encoding channel change pictures into user data of corresponding normal stream pictures.

Barrett discloses means for encoding channel change pictures into user data of corresponding normal stream pictures (**fig. 5; fig. 6; para. 59; and para. 66 of Barrett** – *channel change I-pictures are encoded in the fast tuning data block received with user's channel change request*).



Art Unit: 2625

Nakagawa and Barrett are analogous art because they are from the same field of endeavor, namely control and switching of digital video data streams. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to encode channel change pictures (I-pictures) along with the user's channel change request. The motivation for doing so would have been to reduce channel change latency. Therefore, it would have been obvious to combine Barrett with Nakagawa to obtain the invention as specified in claim 7.

**Regarding claim 8:** Nakagawa discloses means for signaling to a decoder whether to use normal stream or lower-quality stream pictures for subsequent lower-quality stream intra-coded pictures (**column 4, lines 51-53; and column 5, lines 10-17 and lines 22-28 of Nakagawa** – lower-quality intra-coded pictures are stored and subsequently streamed based on the selection of high or low quality output).

Nakagawa does not disclose expressly that the lower-quality stream is specifically a channel change stream.

Barrett discloses encoding normal stream data and separately encoding lower-quality channel change stream data (**fig. 5 and para. 6 of Barrett**).

Nakagawa and Barrett are analogous art because they are from the same field of endeavor, namely control and switching of digital video data streams. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to switch between normal stream data and channel change stream data, as taught by Barrett. The suggestion for doing so would have been that utilizing the channel change stream as the alternate data stream, as taught by Barrett, would reduce channel change latency while maintaining an acceptable level

Art Unit: 2625

of image quality. Therefore, it would have been obvious to combine Barrett with Nakagawa to obtain the invention as specified in claim 8.

**Regarding claims 9 and 12:** Nakagawa discloses a picture selector in signal communication with the lower-quality encoding portion for selecting a subset of the input pictures to code in the lower-quality data stream (**column 4, line 48 to column 5, line 44 of Nakagawa** – based on the outlined conditions, only particular input pictures are selected to be coded in the lower-quality data stream).

Nakagawa does not disclose expressly that the selected subset of input pictures are coded in the channel change stream.

Barrett discloses encoding input pictures in a channel change stream (**fig. 5 and para. 6 of Barrett**).

Nakagawa and Barrett are analogous art because they are from the same field of endeavor, namely control and switching of digital video data streams. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to switch between normal stream data and channel change stream data, as taught by Barrett. The suggestion for doing so would have been that utilizing the channel change stream as the alternate data stream, as taught by Barrett, would reduce channel change latency while maintaining an acceptable level of image quality. Therefore, it would have been obvious to combine Barrett with Nakagawa to obtain the invention as specified in claims 9 and 12.

**Regarding claim 11:** Nakagawa in view of Barrett discloses the video encoding method further comprises at least one of: creating a channel change stream with more frequent intra-coded pictures in the channel change stream than in a corresponding normal stream;

Art Unit: 2625

downsampling to create lower resolution channel change stream pictures (**fig. 4 and column 5, lines 10-17 of Nakagawa** – as per the combination with Barrett set forth above in the rejection of claims 1, 10 and 13, the lower-quality data stream of Nakagawa is specifically the channel change data stream of Barrett); encoding redundant picture syntax in compliance with the JVT standard; encoding channel change pictures into user data of corresponding normal stream pictures (**fig. 5; fig. 6; para. 59; and para. 66 of Barrett** – channel change I-pictures are *encoded in the fast tuning data block received with user's channel change request*); and signaling to a decoder whether to use normal stream or channel change stream pictures for subsequent channel change stream intra-coded pictures (**column 4, lines 51-53; and column 5, lines 10-17 and lines 22-28 of Nakagawa** – lower-quality intra-coded pictures are stored and subsequently streamed based on the selection of high or low quality output; again, as per the combination with Barrett set forth above in the rejection of claims 1, 10 and 13, the lower-quality data stream of Nakagawa is specifically the channel change data stream of Barrett) (**three of the five steps are taught by the combination of Nakagawa and Barrett, and only one is required by the language of claim 11**).

**Regarding claim 14:** Nakagawa discloses a non-transitory digital video medium encoded with signal data (**column 4, lines 38-43 of Nakagawa**) comprising a plurality of block transform coefficients for a combined stream formed from each of normal stream and lower-quality stream data (**column 4, line 48 to column 5, line 3; and column 6, lines 5-16 of Nakagawa**), the coefficients indicative of an original signal data sequence (**column 5, line 58 to column 6, line 7 of Nakagawa**), the normal stream data of the digital video medium having coefficients embodying a normal quality data sequence, and the lower-quality stream of the

Art Unit: 2625

digital video medium having coefficients embodying a reduced-quality data sequence (**column 5, lines 56 to column 6, line 2 of Nakagawa** – block coefficients determined partly based on high or low quality video selection).

Nakagawa does not disclose expressly that the digital video medium is specifically a digital videodisc; the lower-quality stream data is specifically channel change stream data; and the reduced-quality data sequence comprises at least one additional intra-coded picture.

Barrett discloses a digital videodisc encoded with signal data (**para. 46, lines 4-12 of Barrett** – video stored on any one of a variety of types of disk-based storage devices, which would include a digital videodisc); encoding normal stream data and separately encoding lower-quality channel change stream data (**fig. 5 and para. 6 of Barrett**); and the reduced-quality data sequence comprises at least one additional intra-coded picture (**para. 56 of Barrett** – at least one previous I-picture is received for the channel change stream data).

Nakagawa and Barrett are analogous art because they are from the same field of endeavor, namely control and switching of digital video data streams. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to switch between normal stream data and channel change stream data, the channel change stream requiring at least one additional intra-coded picture, as taught by Barrett. The suggestion for doing so would have been that utilizing the channel change stream as the alternate data stream, as taught by Barrett, would reduce channel change latency while maintaining an acceptable level of image quality. Further, it would have been obvious to one of ordinary skill in the art at the time of the invention to encode the signal data specifically on a digital videodisc. Digital videodiscs are commonly-used means of digital video data storage and the use of a digital videodisc would yield

Art Unit: 2625

predictable results. Therefore, it would have been obvious to combine Barrett with Nakagawa to obtain the invention as specified in claim 14.

**Regarding claim 15:** Nakagawa does not disclose expressly wherein the reduced-quality data sequence is encoded in the picture user data.

Barrett discloses means for encoding reduced-quality data sequence into picture user data (**fig. 5; fig. 6; para. 59; and para. 66 of Barrett** – channel change I-pictures are encoded in the *fast tuning data block received with user's channel change request*).

Nakagawa and Barrett are analogous art because they are from the same field of endeavor, namely control and switching of digital video data streams. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to encode channel change pictures (I-pictures) along with the user's channel change request. The motivation for doing so would have been to reduce channel change latency. Therefore, it would have been obvious to combine Barrett with Nakagawa to obtain the invention as specified in claim 15.

**Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakagawa (EP 0 883 299 A2) in view of Barrett (US-2004/0034864) and Nozawa (US-6,587,505).**

**Regarding claim 2:** Nakagawa in view of Barrett does not disclose expressly a low-pass filter in signal communication with the lower-quality encoding portion for providing low-pass filtered input pictures to the lower-quality encoding portion.

Art Unit: 2625

Nozawa discloses a low-pass filter in signal communication with a lower-quality encoding portion for providing low-pass filtered input pictures to the lower-quality encoding portion (**fig. 8 and column 10, lines 49-60 of Nozawa**).

Nakagawa in view of Barrett is analogous art with respect to Nozawa because they are from the same field of endeavor, namely selective encoding and output of low-resolution and high-resolution video image data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to low-pass filter the signal to be input into the lower-quality encoding portion. The motivation for doing so would have been to pass the components that are needed for the lower resolution signal, rather than requiring a more complex computation when encoding the input video as lower-quality video. Therefore, it would have been obvious to combine Nozawa with Nakagawa in view of Barrett to obtain the invention as specified in claim 2.

**Claims 6, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakagawa (EP 0 883 299 A2) in view of Barrett (US-2004/0034864) and well-known prior art.**

**Regarding claim 6:** Nakagawa in view of Barrett does not disclose expressly means for encoding redundant picture syntax in compliance with the JVT standard.

In the Office Action of 21 September 2010, Official Notice was taken that encoding redundant picture syntax in compliance with the JVT standard is old, well-known and expected in the art. The Official Notice was not timely refuted. Therefore, **it is taken as admitted** that encoding redundant picture syntax in compliance with the JVT standard is old, well-known and

Art Unit: 2625

expected in the art. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to do so since the JVT standard is a commonly used standard for encoding video data so as to reduce redundancies between frames. Therefore, it would have been obvious to combine the well-known prior art with Nakagawa in view of Barrett to obtain the invention as specified in claim 6.

**Regarding claim 14:** Nakagawa discloses a digital video medium encoded with signal data (**column 4, lines 38-43 of Nakagawa**) comprising a plurality of block transform coefficients for each of normal stream and lower-quality stream data (**column 4, lines 48-53 and column 6, lines 5-16 of Nakagawa**), the coefficients indicative of an original signal data sequence (**column 5, line 58 to column 6, line 7 of Nakagawa**), the normal stream data of the digital video medium having coefficients embodying a normal quality data sequence, and the lower-quality stream of the digital video medium having coefficients embodying a reduced-quality data sequence (**column 5, lines 56 to column 6, line 2 of Nakagawa** – block coefficients determined partly based on high or low quality video selection).

Nakagawa does not disclose expressly that the digital video medium is specifically a digital videodisc; the lower-quality stream data is specifically channel change stream data; and the reduced-quality data sequence comprises at least one additional intra-coded picture.

Barrett discloses a digital videodisc encoded with signal data (**para. 46, lines 4-12 of Barrett** – video stored on any one of a variety of types of disk-based storage devices, which would include a digital videodisc); encoding normal stream data and separately encoding lower-quality channel change stream data (**fig. 5 and para. 6 of Barrett**); and the reduced-quality data

Art Unit: 2625

sequence comprises at least one additional intra-coded picture (**para. 56 of Barrett** – at least one previous I-picture is received for the channel change stream data).

Nakagawa and Barrett are analogous art because they are from the same field of endeavor, namely control and switching of digital video data streams. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to switch between normal stream data and channel change stream data, the channel change stream requiring at least one additional intra-coded picture, as taught by Barrett. The suggestion for doing so would have been that utilizing the channel change stream as the alternate data stream, as taught by Barrett, would reduce channel change latency while maintaining an acceptable level of image quality. Further, it would have been obvious to one of ordinary skill in the art at the time of the invention to encode the signal data specifically on a digital videodisc. Digital videodiscs are commonly-used means of digital video data storage and the use of a digital videodisc would yield predictable results. Therefore, it would have been obvious to combine Barrett with Nakagawa.

Further, even assuming the arguendo that the list of possible digital video data storage devices (see para. 46, lines 4-12 of Barrett, wherein several example storage devices along with the open-ended phrase “and so on”) does not necessarily include a digital videodisc, Official Notice was taken in the previous Office Action of 21 September 2010 that digital videodiscs (such as VCD’s and DVD’s) are old, well-known and expected in the art. The Official Notice was not timely refuted. Therefore, **it is taken as admitted** that digital videodiscs (such as VCD’s and DVD’s) are old, well-known and expected in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to encode the signal data specifically on a digital videodisc since, as stated above, digital videodiscs are commonly-used means of



Art Unit: 2625

digital video data storage and the use of a digital videodisc would yield predictable results.

Therefore, it would have been obvious to combine the well-known prior art with Nakagawa in view of Barrett to obtain the invention as specified in claim 14.

**Regarding claim 15:** Nakagawa does not disclose expressly wherein the reduced-quality data sequence is encoded in the picture user data.

Barrett discloses means for encoding reduced-quality data sequence into picture user data (**fig. 5; fig. 6; para. 59; and para. 66 of Barrett** – channel change I-pictures are encoded in the *fast tuning data block received with user's channel change request*).

Nakagawa and Barrett are analogous art because they are from the same field of endeavor, namely control and switching of digital video data streams. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to encode channel change pictures (I-pictures) along with the user's channel change request. The motivation for doing so would have been to reduce channel change latency. Therefore, it would have been obvious to combine Barrett with Nakagawa to obtain the invention as specified in claim 15.

#### **(10) Response to Argument**

##### **Regarding Section A of Appellant's Arguments:**

**Appellant argues** claims 1-15 are not taught by the cited references.

**Examiner replies** that Appellant argues, by way of introduction, the general alleged merits of Appellant's invention. Appellant further discusses, in a general nature, the cited references. Appellant does not directly address the specifically recited claim language. The specifically recited language of the claims is fully taught by the cited references, as demonstrated

Art Unit: 2625

in the prior art rejections set forth above, and in the response to Appellant's arguments set forth below.

**Regarding Section B of Appellant's Arguments:**

Examiner has withdrawn the previous rejections of claims 14 and 15 under 35 U.S.C § 101, thus rendering Appellant's arguments moot.

**Regarding Section C of Appellant's Arguments:**

**Appellant argues** Nakagawa (EP 0 883 299 A2) "does not combine a high resolution and low resolution stream, let alone combining a normal stream and a channel change stream as essentially recited in each of claims 1, 3-5, and 7-15, let alone doing the same using a multiplexer or multiplexing as recited in claims 1, 3-5, and 7-12. For example, the entire disclosure of Nakagawa does not even disclose a 'multiplexer' or multiplexing' as recited in Claims 1, 3-5, and 7-12." Additionally, Appellant cites a reference (though does not provide a copy of the reference) which Appellant claims properly defines multiplexing. Appellant further argues that Nakagawa teaches outputting only one of a high resolution picture or a low resolution picture, and not a combined stream.

**Examiner replies** that Nakagawa teaches combining high resolution and low resolution video data streams via switching. For example, column 4, line 54 to column 5, line 3 of Nakagawa discloses the selection between high resolution pictures and low resolution pictures. The selection can change, as discussed in column 5, lines 4-17 of Nakagawa. Thus, the output is a combination of high resolution and low resolution picture data, as required by the claims.

Art Unit: 2625

While the high resolution and low resolution picture data are not simultaneously combined and output over the output line, such a feature is not recited in the claims.

The combination of high resolution and low resolution picture data is performed through digital switching, as shown in figure 1 (element 5) of Nakagawa. This constitutes multiplexing, as shown in references cited and provided by Examiner. The reference quoted by Appellant has not been provided, and does not directly relate to the technology under consideration in the present application.

As discussed in the previously cited Wakerly reference (Digital Design Principles and Practices, by John F. Wakerly, pp. 278-283, copyright 1990, Princeton-Hall), a multiplexer is a digital switch which connects one of a plurality of sources to its output (see page 278 of Wakerly under heading “4.6 MULTIPLEXERS”). Thus, the digital switch shown in figure 1 of Nakagawa, which performs the selective switching and output of high resolution and low resolution pictures, is a multiplexer as understood in the art.

The reference discussed by Appellant appears to relate to missile telemetry and transmitting multiple signals over carrier waves. However, Appellant has not provided the reference either with Appellant’s Brief or in any previous Response, so Appellant’s quotation cannot be examined in context. The quotation would appear to describe the usual manner of carrier wave multiplexing for sending multiple signals by carrier wave over the same frequency band, the signals later being de-multiplexed into individual signals for multiple output lines. This does not directly relate to the claimed video encoding, which uses digital circuitry technology for multiplexing a plurality of inputs to produce a single output.

Art Unit: 2625

Examiner has included an additional reference explicitly related to video multiplexing using digital circuitry, namely “Modeling and Analysis of a Variable Bit Rate Video Multiplexer,” by G. Ramamurthy & B. Sengupta, IEEE INFOCOM '92, pp. 817-827, copyright 1992 (“Ramamurthy”). Therein, Ramamurthy also shows video multiplexing to be switching between multiple inputs to produce a single output (see figure 3 on page 825; and section 4 on pages 820-821 of Ramamurthy, wherein a queueing model is used to output multiple sources of video data in a single output using priority queueing of the multiple, buffered input sources). The multiple inputs are not output simultaneously, but rather via a queueing/priority algorithm.

During patent examination, the pending claims must be given their broadest reasonable interpretation consistent with the specification. See MPEP § 2111. “Combining” has been reasonably interpreted to mean that multiple inputs are output over a single line, which occurs in Nakagawa. While the two inputs are not output simultaneously over the same output line, such a feature has not been claimed. Further, as shown above and in the references provided by Examiner, Nakagawa is reasonably shown to teach multiplexing as understood in the art. Appellant's quotation from an unprovided reference does not directly relate to the claimed video encoding technology, but rather to carrier wave multiplexing and signal processing.

**Appellant argues** that Barrett (US-2004/0034864) does not cure the alleged deficiencies of Nakagawa.

**Examiner replies** that, as set forth in the final rejection of 18 November 2010 and repeated in the Grounds of Rejection above, Nakagawa fails to teach that the lower-quality encoding portion (taught by Nakagawa) provides channel change stream data; and that the multiplexer (also taught by Nakagawa) combines the normal and channel change data streams.

Art Unit: 2625

However, Barrett discloses encoding normal stream data and separately encoding channel change stream data (see figure 5 and paragraph 6 of Barrett). Therefore, by combination with Nakagawa, the lower-quality encoding portion would provide channel change stream data, and the multiplexer would thus combine the normal and channel change (rather than lower-quality) data streams. Utilizing the channel change stream as the alternate data stream, as taught by Barrett, would reduce channel change latency while maintaining an acceptable level of image quality. Thus, claims 1, 10 and 13 are fully taught by the combination of Nakagawa in view of Barrett.

**Regarding Section D of Appellant's Arguments:**

**Appellant argues** that claim 2 is allowable due to its dependency from claim 1, and essentially repeats the arguments with respect to the rejection of claim 1 under 35 U.S.C. § 103(a) as being unpatentable over Nakagawa in view of Barrett. Appellant further argues that Nozawa (US Patent 6,587,505) does not cure the alleged deficiencies of the combination of Nakagawa in view of Barrett

**Examiner replies** that claim 1 has been shown above to be fully taught by the combination of Nakagawa in view of Barrett. Thus, claim 2 is not allowable merely due to its dependency from claim 1, nor is Nozawa even required to cure any alleged “deficiencies” of the combination with respect to claim 1. Nozawa is relied upon to teach the specifically recited limitations of claim 2, and is combinable with Nakagawa and Barrett, as set forth in the corresponding prior art rejection.

Art Unit: 2625

**Regarding Section E of Appellant's Arguments:**

**Appellant argues** that claims 6, 14 and 15 are allowable for the reasons previously set forth with respect to claim 1, and asserts that the well-known prior art does not cure the alleged deficiencies of the combination of Nakagawa in view of Barrett.

**Examiner replies** that claim 1 has been shown above to be fully taught by the combination of Nakagawa in view of Barrett. Thus, claims 6, 14 and 15 are not allowable merely due to the reasons argued with respect to claim 1.

**Regarding Section F of Appellant's Arguments:**

**Appellant concludes** that all of the claims represent proper statutory subject matter and distinguish over the cited prior art references.

**Examiner concludes** that all of the claims represent proper statutory subject matter, and thus the rejection of claims 14 and 15 under 35 U.S.C. § 101 has been withdrawn.

However, the rejections of claims 1-15 under 35 U.S.C. § 103(a) over various cited combinations of prior art are proper. Thus, Examiner respectfully requests the Board affirm the rejections of claims 1-15 under 35 U.S.C. § 103(a), set forth in the final rejection of 18 November 2010.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

Art Unit: 2625

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/James A Thompson/

Primary Examiner, Art Unit 2625

Conferees:

Mark K. Zimmerman

/Mark K Zimmerman/

Supervisory Patent Examiner, Art Unit 2625

Benny Q. Tieu

/Benny Q Tieu/

Supervisory Patent Examiner, Art Unit 2625